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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,183	01/16/2002	Masahiro Uchida	111718	2795
25944	7590	10/12/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			LEFLORE, LAUREL E	
			ART UNIT	PAPER NUMBER
			2673	

DATE MAILED: 10/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/046,183

Applicant(s)

UCHIDA ET AL.

Examiner

Laurel E LeFlore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4 and 7-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 7-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/26/04, 8/26/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claim 11 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 11 recites the limitation, "the organic electroluminescent device being used as a light source for said liquid crystal device." It is noted that claim 11 is dependent on currently amended claim 1, which recites, "said liquid crystal device being a transflective liquid crystal display device." An embodiment of the present invention that consists of a organic electroluminescent device being used as a light source for a transflective liquid crystal display is not found in the specification as originally filed.

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebby et al. 6,069,593 in view of Moriya 2001/0003707 A1 further in view of Kitai 2002/0163606 A1.

In regard to claim 1, Lebby et al. discloses a mobile terminal. See figure 1, element 10 and column 2, line 33, disclosing "a portable electronic device".

The mobile terminal comprises an organic electroluminescent device that displays (see figures 1 and 2, element 28) and a liquid crystal device that displays (see figures 1 and 2, element 26). See column 3, lines 39-42, disclosing that "large direct view display 26 is a non-emissive liquid crystal display (LCD) and small direct view display 28 is an emissive display such as one utilizing organic electroluminescent technology." Lebby further discloses that the displays display images. See figure 1 and column 2, lines 49-51, disclosing, "Display carrier 14 includes in this particular embodiment a plurality of display apparatus 15 for viewing display images."

Lebby does not disclose that the mobile terminal is capable of being folded such that the organic electroluminescent device faces inside while the liquid crystal device faces outside.

Moriya discloses a mobile terminal that is capable of being folded such that one display device faces inside while another display device faces outside. See figures 4 and 5 and paragraphs [0039]-[0041] disclosing, "two housing sections 10 and 20 are connected by a hinge...to form the folded type portable radio apparatus...The first housing section 10 is provided with a...first display section 12...the respective back surfaces of the first and second housing sections 10 and 20 are provided with second and third display sections 13 and 23, respectively."

Moriya teaches in paragraph [0011], "in the conventional folded type portable radio apparatus, all of the sections such as the display section... are arranged on the same front surface of the housing in the opened state. Therefore, in the state in which the two housing sections are folded, the display section and the key operation section

are hidden inside the housings...there is a disadvantageous inconvenience in the aspect of the operability." Moriya further teaches in paragraph [0020] that an "object of the present invention is to provide a folded type portable radio apparatus in which a display section can be used in the state in which the folded type portable radio apparatus is folded."

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lebby by having the mobile terminal mobile terminal is capable of being folded such that the organic electroluminescent device faces inside while the liquid crystal device faces outside, like the configuration of displays in the invention of Moriya. One would have been motivated to make such a change based on the teaching of Moriya "to provide a folded type portable apparatus in which a display section can be used in the state in which the...apparatus is folded."

Lebby in view of Moriya do not disclose that the liquid crystal device is a transflective liquid crystal display device.

Kitai discloses a liquid crystal device which is a transflective liquid crystal device. See paragraph [0018], disclosing, "[0018] The fourth object of the invention is to provide a thin, robust transflective monochromatic liquid crystal display, having improved performance characteristics including extended life (25-30,000 hours), high luminance, and high contrast in a bright ambient environment, which is relatively easy to manufacture and is available in a number of colors without the use of filters."

Kitai further teaches in paragraph [0014], "[0014] Clearly such reflective displays are not useful in a dark environment. A hybrid type of display, based on employing both

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reflective and transmissive illuminations, overcomes this limitation. This type of hybrid device is known as a transflective liquid crystal display and has been employed, for example, in automobile displays where the transmissive mode is switched on and used only for viewing the display in the dark. Transflective operation is enabled by disposing a transflective layer between the backlight assembly and the rear surface of the liquid crystal device. Such a layer degrades both modes of operation, so that overall performance is a design compromise between the two. "

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lebby in view of Moriya, by having the LCD be a transflective LCD, as in the invention of Kitai. One would have been motivated to make such a change based on the teaching of Kitai that such "a hybrid type of display...is a design compromise between the two [reflective and transmissive displays]". Thus, Kitai teaches that such a choice is a design choice with the advantage of having a display that can both be used in a dark environment and conserve power when used in a bright environment by being reflective.

3. In regard to claims 9 and 10, Lebby in view of Moriya discloses an invention similar to that which is claimed in claims 9 and 10. See rejection of claim 1 for similarities. Lebby in view of Moriya does not disclose that the liquid crystal device is a color display or monochrome display.

Kitai discloses a liquid crystal device that is a monochrome and color display, as disclosed in the rejection of claim 1.

Kitai further teaches in paragraph [0013], "Both monochromatic and color displays are possible, with the latter employing color filters to filter individual colors from the ambient source of light.

It would have been obvious to one of ordinary skill in the art at the time to modify the invention of Lebby in view of Moriya by having the display be a monochrome or color display, as in the invention of Kitai. One would have been motivated to make such a change in order to provide a liquid crystal display that is monochrome or in color as appropriate for the specific use of the display and since Kitai teaches that either type of display is possible.

4. In regard to claim 11, Lebby in view of Moriya discloses an invention similar to that which is claimed in claim 11. See rejection of claim 1 for similarities. Lebby in view of Moriya does not disclose that the organic electroluminescent device is used as a light source for the liquid crystal device.

Kitai discloses a liquid crystal device that is illuminated by an electroluminescent device. See paragraph [0049], disclosing, "The liquid crystal display also includes an EL light source 40 disposed below the liquid crystal device 30".

Kitai further teaches the use of EL devices for lighting LCD's in paragraph [0006], disclosing, "For smaller liquid crystal displays in use, other types of light source are employed, the most common being powder EL and LED's" and in paragraph [0010], disclosing, "An alternative approach to multicolor liquid crystal displays is the use of a multicolor emissive backlight, with an array of different color light sources aligned with the color sub-pixels of the liquid crystal device. Both photoluminescent (U.S. Pat. No.

4,793,691) and powder EL (see U.S. Pat. No. 4,772,885) light sources have been proposed.”

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lebby in view of Moriya by using the organic electroluminescent device as a light source for the liquid crystal device, as in the invention of Kitai. One would have been motivated to make such a change in order to provide illumination to the liquid crystal display, using a method that is “common”, according the teaching of Kitai.

5. In regard to claim 12, see Lebby column 4, lines 4-11, referring to figure 2, which states that “When power is being supplied to portable electronic device through battery power source 12, only one display, either 24, 26 or 28 is capable of being “ON”. In this instance, the user would have control of which one display is “ON”, more particularly preferred viewing operation, through function buttons 30. This ability for the electronic control of displays 24, 26 and 28 enables lower power drain on battery source 12. “ Thus, a device that switches display between the liquid crystal device and the organic electroluminescent device is provided with the function buttons 30.

6. Claims 3 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebby et al. 6,069,593 in view of Moriya 2001/0003707 A1 further in view of Kitai 2002/0163606 A1 as applied to claim 1 above, and further in view of Shiraishi et al. 5,144,292, and further in view of Yamashita et al. 2000-105573.

7. In regard to claims 3 and 14, Lebby in view of Moriya further in view of Kitai discloses an invention similar to that which is claimed in claim 13. See rejection of

claim 1 for similarities. Lebby in view of Lebby in view of Moriya further in view of Kitai does not disclose that the electronic apparatus, when not manipulated for a predetermined period or during stand-by, the organic electroluminescent device being in a non-display mode, and only the liquid crystal device being in a display mode.

Shiraishi et al. discloses a liquid crystal display device (see figure 4, element 16) that has an electroluminescent backlight panel (element 24). See also from figure 4 that the electroluminescent panel is continuously driven. Shiraishi discloses in column 2, lines 36-38, that "a timer 13, which counts a predetermined period of time, serves to turn off the electroluminescent panel light 24". In this way, a timer is used to turn off the organic electroluminescent device after a predetermined period of time. Thus, after a predetermined period of time, the organic electroluminescent device is in a non-display mode, and only the liquid crystal device is in a display mode.

Shiraishi does not, however, disclose that the predetermined period of time corresponds to a period of time in which the device is not manipulated or during standby. Yamashita et al. discloses an organic electroluminescent display in which only the minimal necessary information is displayed during standby.

It would have obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lebby in view of Komiya by switching off the EL display after a predetermined time period, leaving only display by the LCD, as in the invention of Shiraishi, and further to have the predetermined period of time correspond to a standby time period, as in the invention of Yamashita. One would have been motivated to make such a change in order to have low power consumption (see

Yamashita abstract), since an electroluminescent display consumes more power than a liquid crystal display.

8. Claims 4, 7 and 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Lebby et al. 6,069,593 in view of Moriya 2001/0003707 A1 further in view of Kitai 2002/0163606 A1 as applied to claim 1 above, and further in view of Kimura et al. 2001/0035849 A1.

9. In regard to claims 4, 7 and 8, Lebby in view of Moriya further in view of Kitai discloses an invention similar to that which is claimed in claims 4, 7 and 8. See rejection of claim 1 for similarities. Lebby in view of Komiya differs from the claimed invention in that it does not specify which driving method is to be used for the two displays.

Kimura et al. teaches in paragraph [0005] that "Similar to LCDs that have roughly two types of driving methods with one being passive matrix type...and the other being active matrix type...EL displays also are driven by roughly two types of driving methods. One is passive matrix type and the other is active matrix type." It is understood that a passive matrix driving method is a "simple" matrix driving method.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lebby in view of Komiya according to the teaching of Kimura to use either an active or passive (simple) matrix driving method for an EL or LCD display. One would have been motivated to make such a change in order to use one of two known types of driving methods, active or passive (simple), for LCD and EL displays.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lebby et al. 6,069,593 in view of Moriya 2001/0003707 A1 further in view of Kitai et al.

2002/0163606 A1 as applied to claim 1 above, and further in view of Biferno 4,568,928.

11. In regard to claim 13, Lebby in view of Moriya further in view of Kitai discloses an invention similar to that which is claimed in claim 13. See rejection of claim 1 for similarities. See Lebby, column 2, lines 33-34, disclosing a battery is provided in the portable electronic device. Lebby in view of Komiya does not disclose a device that suspends display by the organic electroluminescent device and that switches automatically display by the liquid crystal device, when a remaining charge of the battery becomes a predetermined remaining charge.

Biferno et al. discloses a display system which includes an electoluminescent display (see column 1, lines 58-61) and a backup display (see column 2, lines 5-8). See column 4, lines 1-8, disclosing that the backup display may be a liquid crystal display. According to the invention, the backup display "becomes visible to the viewer when the electro-luminescent display...is not energized." Thus, there is a device that switches display from the electroluminescent device to the liquid crystal device based on the remaining energy in the electroluminescent device.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lebby in view of Moriya further in view of Kitai by having the display switch from the electroluminscent device to the liquid crystal device according to the energy level of the electroluminescent device, as in the invention of Biferno, with the energy being supplied by the battery of Lebby's invention.

In this manner, display by the organic electroluminescent device would switch automatically to display by the liquid crystal device, when a remaining charge of the battery becomes a predetermined remaining charge. One would have been motivated to make such a change in order to provide a display to the viewer when the electroluminescent display is not energized.

12. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lebby et al. 6,069,593 in view of Moriya 2001/0003707 A1 further in view of Kitai 2002/0163606 A1, as applied to claim 1 above, and further in view of Shi et al. 5,736,754.

13. In regard to claim 15, Lebby in view of Moriya further in view of Kitai discloses an invention similar to that which is disclosed in claim 15. See rejection of claim 1 for similarities. Lebby in view of Moriya does not disclose that the organic electroluminescent device includes red, green and blue light emitting organic electroluminescent elements.

Shi discloses an organic electroluminescent device that includes red, green and blue light emitting organic electroluminescent elements. See column 1, lines 12-18, disclosing, "An organic LED array for image display applications is composed of a plurality of organic light emitting pixels arranged in rows and columns. To generate a full color display from a thin film electroluminescent array, there are two primary technologies known in the prior art. A full color array can be achieved by constructing three sub-pixels in one pixel, each sub-pixel emitting red, green or blue."

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lebby in view of Moriya by having the

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organic electroluminescent device include red, green and blue light emitting organic electroluminescent elements, as in the invention of Shi. One would have been motivated to make such a change based on the teaching of Shi that such an arrangement is a conventional and known technology and will "generate a full color display from a thin film electroluminescent array".

14. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebby et al. 6,069,593 in view of Moriya 2001/0003707 A1 further in view of Kitai 2002/0163606 A1, as applied to claim 1 above, and further in view of Shimazaki 5,493,690.

15. In regard to claims 16 and 17, Lebby in view of Moriya further in view of Kitai discloses an invention similar to that which is disclosed in claims 16 and 17. See rejection of claim 1 for similarities. Lebby in view of Moriya further in view of Kitai does not disclose that the organic electroluminescent display (the display facing inside) is automatically turned OFF when the mobile terminal is folded from the opened state and automatically turned ON when the mobile terminal is opened from the folded state.

Shimazaki discloses a foldable telephone set in which the display facing inside is automatically turned OFF when the mobile terminal is folded from the opened state and automatically turned ON when the mobile terminal is opened from the folded state. See figures 1(b) and 1(a) and note element 15 of fig. 1(b), depicting the display of Shimazaki, which faces the inside of the mobile device.

Shimazaki teaches in column 2, lines 42-47, "where the foldable portable telephone set is constructed such that the display device itself...is automatically

switched on or off in response to an opening or closing movement of the cover section, the power dissipation of the telephone set can be reduced.”

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lebby in view of Moriya further in view of Kitai by having the display facing inside automatically turned OFF when the mobile terminal is folded from the opened state and automatically turned ON when the mobile terminal is opened from the folded state, as in the invention of Shimazaki. One would have been motivated to make such a change based on the teaching of Shimazaki that “the power dissipation of the telephone set can be reduced” by having the inside display “automatically switched on or off in response to an opening or closing movement of the cover section”.

Response to Arguments

16. Applicant's arguments, see page 5 of the applicant's remarks, filed 25 June 2004, with respect to the rejection(s) of claim(s) 5 under 35 USC 103(a) utilizing the Oshitani reference have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art.

17. Further regard to applicant's argument on page 5, applicant argues that “none of the applied art teaches, discloses or suggests suspending display...when a remaining charge of the battery...becomes a predetermined remaining charge.” However, as stated above and in the 26 March 2004 office action, Biferno et al. discloses a display system which includes an electroluminescent display (see column 1, lines 58-61) and a

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backup display (see column 2, lines 5-8). See column 4, lines 1-8, disclosing that the backup display may be a liquid crystal display. According to the invention, the backup display "becomes visible to the viewer when the electro-luminescent display...is not energized." Thus, there is a device that switches display from the electroluminescent device to the liquid crystal device based on the remaining energy in the electroluminescent device. Examiner asserts that no energization is a predetermined remaining charge.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laurel E LeFlore whose telephone number is (703) 305-8627. The examiner can normally be reached on Monday-Friday 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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6 October 2004



BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600